

# Study R13 – Recreation Surveys

Oroville Facilities Relicensing  
FERC Project 2100

Presented to the Oroville Relicensing  
Recreation and Socioeconomics Work Group

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# Study Objectives

- To determine Project area recreationists'
  - Background and use characteristics
  - Perceptions of and preferences for facility and area development
  - Perceptions of crowding and encounters with others
  - Levels of satisfaction
  - Reasons for visiting the area
  - Recreation spending
- To determine water-based recreationists in Northern California perceptions of the Lake Oroville area, reasons for not visiting or visiting more often, and interest/demand for special events and facilities in the study area.
- To determine the perceptions of recreationists at similar sites of those sites (for comparison with Lake Oroville) and of the study area, and interest/demand for special events and facilities in the study area.

# Relation to Other Studies

- This study has provided data for many other recreation studies conducted for relicensing including:
  - R2 – Recreation Safety Assessment
  - R3 – Assessment of the Relationship of Project Operations and Recreation
  - R4 – Relationship Assessment of Fish/Wildlife Management and Recreation
  - R5 – Assessment of Recreation Areas Management
  - R7 – Reservoir Boating
  - R8 – Recreation Carrying Capacity
  - R12 – Projected Recreation Use
  - R14 – Assessment of Regional Recreation and Barriers to Recreation
  - R16 – Whitewater and River Boating
  - R17 – Recreation Needs Analysis
  - R18 – Recreation Activity, Spending, and Associated Economic Impacts

# Methodology

## Lake Oroville Area Recreation Visitor Survey

- Purpose: obtain info on visitors' pattern of past use, current visit, & perceptions and opinions regarding a range of conditions and factors that could affect their enjoyment.
- Instruments: On-Site Survey and a follow up Mailback Survey
  - On-Site Survey contained several pages of general questions plus 3 activity-specific sections for anglers, boaters, & trail users (non participants were asked to skip those sections)
  - Mailback Survey was primarily used to get info on visitors' recreation spending associated with their Lake Oroville visit (post-visit information).

# On-Site Survey Methodology

- Self-administered survey administered with face-to-face contacts at recreation sites (plus windshield version)
- Administered at 44 sites over a 12-month period from Memorial Day weekend, 2002 through Memorial Day weekend, 2003
- Monthly schedule with 100+ 4-hour sampling periods using a stratified random sampling design with stratification by day of week and time of day
- Typically 8-12 sampling periods per weekend day, 3-5 per weekday
- Visitors must have been recreating at the site where contacted for at least 30 min. (with a few exceptions).

# Mailback Survey Methodology

- Mailed 7 to 10 days after original On-Site Survey contact (92.5% provided a name and address).
- Butte County residents and non-residents sent slightly different surveys to better estimate economic impacts
- Reminder postcard and second mailing used to increase response rate

# Visitor Survey Samples Obtained

Resource Area	On-Site Survey		Mailback Survey*	
	sample	%	sample	%
Lake Oroville	1396	54.0	632	59.0
Diversion Pool	62	6.5	32	3.0
Low Flow Ch	169	2.4	58	5.4
Th. Forebay	311	12.0	99	9.2
Th. Afterbay	295	11.4	120	11.2
OWA	350	13.6	130	12.1
<b>TOTAL</b>	2583	100.0	1071	100.0

\* Mailback survey overall participation rate was about 41%.

# Hunter Survey

## Methodology & Samples Obtained

- Purpose: Assess hunters' use patterns, attitudes, and perceptions specific to hunting experience, species hunted, & hunting locations
- Self-administered on-site survey with follow-up mailback survey (generally identical to mail survey sent to non-hunter user groups)
- Sampling schedule: OWA sites, mid-Oct 2002 thru Jan 2003, weekends only
- 106 on-site Hunter Surveys completed, 38 mailback surveys returned



# Similar Site Survey

## Methodology & Samples Obtained

- On-site survey booklet (no mailback)
- Administered at Black Butte Lake, Lake Berryessa, and Shasta Lake, which offer water-based recreation opportunities similar to Lake Oroville
- Purposes:
  - determine how visitors to other reservoirs in N. California perceived conditions and rated their experiences at those sites, for comparison with Lake Oroville area visitors
  - determine how visitors to other reservoirs in N. California perceived Lake Oroville, and gauge interest in special events and new facilities as motivations to visit
- Sampling occurred on at least 2 weekend days in July & Aug 2002 at each site
- A total of 293 Similar Site Surveys completed

# Household Survey

## Methodology & Samples Obtained

- Telephone interviews with residents of Butte County, Reno area, San Francisco area, & Sacramento area
- Purpose: identify latent demand among N. California/Reno area residents for special events and facilities in Lake Oroville area & assess potential factors influencing why residents might not be visiting the Lake Oroville area
- 100 respondents from each of the four strata (market areas)

# SURVEY RESULTS

## Summary of Selected Items

- Lake Oroville Area Recreation Visitor Survey (12 slides)
- Hunter Survey (3 slides)
- Similar Site Survey (5 slides)
- Household Survey (6 slides)

# Recreation Visitor Survey

- **Day vs. Overnight Use/Length of Visit**
  - Most visitors are day users, exception is Lake Oroville where ½ are overnight visitors
  - Avg overnight stay was 3 days (2 nights)
  - Overnight stays less common in non-peak season
  - 1-day visits typically ranged from 3 to 6 hours
- **Visitor Group Size/Composition**
  - Varied from median size of 2 at Diversion Pool & OWA to median of 7 at Forebay
  - Children not usually part of groups at OWA, LFC, Diversion Pool
  - Several children often included in groups at Lake Oroville and Forebay

# Recreation Visitor Survey

- **Visitor Activities**

- Lake Oroville: pleasure boating, boat angling, other water-based activities, camping, general shoreline day use
- Afterbay: similar to Lake Oroville except for camping and special emphasis on PWC use
- Diversion Pool: trail and shoreline-based day use
- Forebay: bank fishing, swimming, shoreline day use
- OWA & LFC: bank fishing, fish and wildlife viewing, general sightseeing
- Hunting a dominant use at Afterbay and OWA during certain fall and winter hunting seasons

# Recreation Visitor Survey

- **Frequency & Seasonality of Use**
  - Most were regular visitors
  - Most areas received considerable fall and spring use, limited amount of winter use
  - Non-summer visitors more local residents
- **Factors in Choosing to Visit**
  - Proximity the dominant reason for visiting
  - Desirable natural resource conditions, good facilities, good fishing opportunities also important
- **Crowding**
  - Few visitor concerned about crowding except at the OWA
  - Also true for peak season and off-peak visitors & local and non-local visitors

# Recreation Visitor Survey

- **Scenery**
  - Typically rated scenery as “moderately appealing” except at Diversion Pool which was rated very highly (“extremely appealing”)
- **Need for Special Events/New Facilities**
  - Few visitors desired new activities or special events
  - More beach and swim areas of greatest interest
- **Setting Preferences**
  - Enjoyed both solitude & having other visitors nearby
  - Preferred some degree of risk and challenge & opportunities to use outdoor skills
  - Preferred setting where sights and sounds of humans were “rare” or “unusual” & preferred natural appearing landscapes

# Recreation Visitor Survey

- **Trail Facilities**

- Most visitors considered existing system of trails to be adequate, strong interest for more equestrian trails and better trail signage near Diversion Pool

- **Camping Facilities**

- Most visitors felt developed camping facilities are needed in areas besides Lake Oroville
- Lake Oroville visitors were interested in more floating campsites, moderate desire for more RV sites, showers, & site screening

- **Boating Facilities**

- Some interest for more boat ramps, less so for marinas, many visitors interested in more boarding docks at Lake Oroville & fuel at Afterbay



# Recreation Visitor Survey

- **Fishing & Other Facilities**
  - Would like fish cleaning stations at Diversion Pool, Forebay, OWA
  - Would like developed day use & shoreline picnic sites at Lake Oroville, Afterbay, Diversion Pool
  - Would like swimming areas at Lake Oroville & Afterbay, interpretive facilities at Forebay & Afterbay, and equestrian facilities at Diversion Pool
- **Management Issues**
  - Most concern for lack of access to shoreline by Lake Oroville visitors, litter & shoreline sanitation an issues for OWA and LFC visitors, also concerned with safety and security & perceived lack of law enforcement personnel at OWA
- **Water Condition Issues**
  - Concerned about low water levels & shallow areas at Lake Oroville, similar concerns expressed about Afterbay

# Recreation Visitor Survey

- **User Interactions**

- Low concern overall
- Lake Oroville visitors mostly concerned about interactions with PWC, OWA visitors concerned about unsafe behavior, use of alcohol, and overuse of recreation sites

- **Overall Satisfaction**

- Generally very high satisfaction
- Most visitors indicated “satisfied” or “very satisfied” with last visit, slightly higher at Diversion Pool

- **Use of Regional Lakes/Rivers**

- Most prominent substitutes: Lake Almanor, SF Bay/Delta, Bucks Lake, Lake Tahoe, Folsom Lake, Shasta Lake, & Sacramento River
- Most visitors only visited the study area on their trip

# Recreation Visitor Survey: Fishing Section

- **Past Visits/Frequency of Visits**
  - Nearly all anglers were repeat visitors & many fished frequently in the area, but more were infrequent visitors who fished only a few times/year or had not fished in the last year
- **Use of Guides/Participation in Tournaments**
  - Very few anglers used guides and relatively few participated in fishing tournaments (tournament participants were generally not surveyed at tournaments, but may have been included at other times)
- **Crowding**
  - Except at the OWA, anglers were not concerned with crowding while fishing, at least “moderately crowded” at the OWA

# Recreation Visitor Survey: Fishing Section

- **Fish Species Sought and Caught**
  - Lake Oroville: black bass; Diversion Pool: bass, trout and salmon; Forebay: primarily fishing for trout; Afterbay: bass & salmon; OWA: salmon, trout, steelhead
  - Most anglers caught at least one fish, 1/3 to 1/2 of anglers in each resource area had not yet caught anything
  - If caught fish, generally caught 2 to 5 fish, catch rates higher at Lake Oroville – avg of 7 caught
  - Black bass most frequently-caught (most were released), followed by salmon (only 1/3 released)
- **Regulations**
  - 80 to 90 percent of anglers felt knowledgeable about regulations and even more felt regulations allowed a quality recreation experience
- **Satisfaction**
  - Most anglers satisfied with fishing experience
  - If not satisfied, generally complained of not catching any (or enough fish) or about low reservoir pool levels

# Recreation Visitor Survey: Trails Section

- **Use History/Primary Type of Trail Use**
  - Many were repeat trail users, hiking/walking the primary type of trails use, Diversion Pool, most were equestrians
- **Crowding**
  - Nearly all trail users considered crowding to be slight or non-existent
- **Encounters**
  - Generally less than 8% of trail users reported an encounter with other trail users that they felt put them at risk,
  - Reported encounters were with animals or motorized use on trails or at road crossings
- **Condition of Trails**
  - 90% or more satisfied with trail condition
  - If not satisfied, generally complained of difficulty reaching shoreline, trailside vegetation, & user conflicts, not trail condition.

# Recreation Visitor Survey: Boating Section

- **Areas Boated During Visit**
  - Most Lake Oroville boaters focused on the Main Basin and South Fork arm, most Forebay and Afterbay boaters stayed in those areas
- **Crowding**
  - Most considered the areas to be “not at all crowded” or at most “slightly crowded”
- **Encounters on the Water**
  - 3 to 13% of boaters personally had an encounter that they felt put them at risk, generally either boats coming too close, boaters not observing passing or right-of-way rules or speed restrictions, or PWC behaving recklessly.

# Recreation Visitor Survey: Boating Section

- **Type of Watercraft Used & Ownership**
  - Predominantly runabouts/ski boats at Lake Oroville and Afterbay, PWC more common at Afterbay, Forebay more diverse
  - Most people own the boat they use; others borrow a friend's or family member's boat or use it with them
- **Use of Boat Ramps**
  - Lake Oroville & Forebay boaters most often use 4 primary developed ramps at Lake Oroville
  - Afterbay boaters use Monument Hill and Lake Oroville ramps
- **Waits to Use Boat Ramp**
  - More than ½ of Lake Oroville boaters said they typically have to wait to use the ramp they use most often, generally 15 min or less, most Forebay and Afterbay boaters did not report waiting
- **Satisfaction with Boating Experience**
  - 88 to 91 percent satisfied,
  - Lake Oroville & Afterbay dissatisfied boaters blamed low water conditions & related launching problems

# Hunter Survey

- **Frequency/Seasonality of Use**
  - Most were regular visitors who most often visit during fall and winter; ½ also used area during spring & summer
- **Length of Stay/Group Size**
  - Nearly all 1-day visitors, most there for a few hours, nearly all arrived before 9am and left before noon
  - Groups of two or three, though solo hunters and larger groups present
- **Areas Used for Hunting & Access**
  - Visited OWA or Afterbay, ½ hunt in Afterbay, rest favored OWA, 83% considered access to OWA to be adequate
- **Species Hunted for & Animals Taken**
  - Majority hunting for ducks, many hunting for more than one type of game
  - Duck and turkey hunters most successful



# Hunter Survey

- **Crowding**
  - Most hunters felt “not at all” to “slightly crowded,” 1/3 considered area to be “moderately crowded”
- **Encounters with Others**
  - 6% of hunters reported encounters with others that put them at risk, most commonly other hunters “hunting too close”
- **Reasons for Hunting in OWA**
  - Most common reasons: proximity, good access, easy availability, good hunting opportunities with light hunting pressure, lack of user fees
- **Regulations**
  - 90% felt knowledgeable about regulations, 85% felt they allowed a quality experience

# Hunter Survey

- **Perceptions of Management Issues**
  - Most felt the 15 management issues were not a problem except for litter – most felt it was a “slight” or “moderate problem,”
  - Notable level of concern about water level fluctuation at Afterbay; 1/3 felt this was a “moderate” or “big problem”
- **Suggestions for Improvements to OWA**
  - Most common included actions to improve wildlife habitat & otherwise improve game populations, expand access & improve roads, maintain higher & consistent water levels in Afterbay
- **Satisfaction with Hunting Experience**
  - $\frac{3}{4}$  of hunters satisfied with hunting experience, those not satisfied most often blamed a lack of birds, habitat needing improvement, & water levels too low at Afterbay

# Similar Site Survey

- Comparison of Characteristics with Lake Oroville visitors
  - Generally like Lake Oroville area visitors in recreation use patterns
  - Similar site visitors more often day users, tended to have larger groups
  - Generally participated in same activities as Lake Oroville area visitors, drawn to reservoir by convenience from home
  - Shasta Lake somewhat unique from Lake Oroville & other similar sites in that it is a greater draw for out-of-area tourism

# Similar Site Survey

- **Crowding**
  - Perceptions of crowding somewhat higher at 2 of 3 similar sites than Lake Oroville, especially at Lake Berryessa
- **Scenery**
  - Perceptions of appeal of scenery lower at Black Butte than at Lake Oroville, about the same at Berryessa, and higher at Shasta
- **Management Issues**
  - Issues related to access, facilities, & services generally perceived to be a “big problem” by only a small percentage of visitors both at Lake Oroville & similar sites
  - Perceptions of law enforcement issues & litter/sanitation highest at Lake Oroville, water condition issues more frequently considered a “big problem” at Lake Oroville, many of the user interaction issues most often considered to be a “big problem” at Shasta

# Similar Site Survey

- **Number of Facilities**
  - Lake Oroville visitors more often considered RV and group campsites too few; Lake Shasta visitors more often considered the number of campgrounds and shower to be too few.
  - Lake Oroville visitors more often considered most types of boating facilities listed as too few
  - Lake Oroville visitors also more often considered swim areas, shoreline DUAs and interpretive programs to be too few
- **Satisfaction with Visit**
  - Lake Oroville visitors were less often satisfied than Shasta or Black Butte Lake visitors, slightly more often satisfied than Lake Berryessa visitors

# Similar Site Survey

- **Boating Encounters**
  - Similar percentage of “put at risk” encounters across the four sites, and generally same type of encounters.
- **On-Water Crowding**
  - Higher perception of crowding at both Shasta and Berryessa
- **Waits to Launch**
  - Similar percentages reported having to wait, with similar average wait times (somewhat longer at Berryessa)
- **Satisfaction with Boating**
  - Lake Oroville and Shasta share similar high level of satisfaction, substantially lower at other two sites

# Similar Site Survey

- **Reasons for Not Visiting Lake Oroville**
  - Most common reason was lack of knowledge, followed by distance
  - Others liked other lake better; relatively few cited negative features of Lake Oroville
- **Reasons for Dissatisfaction with Last Visit to Lake Oroville**
  - Few respondents; Lake level fluctuation most prominent reason
- **Special Events and New Facilities**
  - 10-18% expressed interest in fishing events, food & beverage festivals, waterskiing events, and powerboat races
  - 13-25% expressed interest in a water park, a floating restaurant, and warm water swimming areas/beaches

# Household Survey

- Past Visits to Lake Oroville Area
  - 45-56% from SF Bay, Reno, and Sacramento areas had visited
  - 63-71% visit less than once per year
  - About 50% hadn't visited for more than 2 years
- \* Survey asks different set of questions to past visitors and non-visitors



# Household Survey (Past Visitors)

- Satisfaction with Last Visit
  - 34-38% were very or extremely satisfied (44% in Butte Co.)
  - 40-48% were somewhat satisfied, most others neutral, just 4% dissatisfied (21% in Butte Co.)
  - Very few responses for why dissatisfied
  - Lake level fluctuation/lake too low primary reason among Butte Co. respondents

# Household Survey (Past Visitors)

- Why No Visits in Last 2 Years?
  - Top reasons were: prefer other places, personal reasons, and Lake Oroville too far/prefer closer places (25-40% each)
  - 7-17% commented on low quality of Lake Oroville recreation opportunities or said “don’t like it”

# Household Survey (Past Visitors)

- Interest in Special Events (from list of 14)
  - 22-37% expressed interest in top 5 items, in this order:
    - Fishing events
    - Food and beverage festivals
    - Water-skiing events
    - Powerboat races
    - Canoe/kayak/river related events
- Interest in Facilities (from list of 8)
  - 28-38% expressed interest in 6 of the 8 items, in this order:
    - Floating restaurant
    - Warm water swimming
    - Showers at DUAs
    - Expanded outdoor/nature/cultural center
    - Water park
    - Children's play areas

# Household Survey (Non-Visitors)

- Why Never Visited?
  - 42% = don't know enough about area
  - 31% = too far away
  - 13% = prefer other lakes
  - 8% = prefer a different setting
- Other Preferred Lakes
  - 37% = Lake Tahoe (\* Reno area residents)
  - 11% = Folsom Lake (\* Sac area residents)
  - 11% = Lake Berryessa (\* SF & Sac area residents)

# Household Survey (Non-Visitors)

- Interest in Special Events (from list of 13)
  - 20-25% expressed interest in top 4 items, in this order:
    - Food and beverage festivals
    - Canoe/kayak/river related events
    - Fishing events
    - Powerboat races
- Interest in Facilities (from list of 8)
  - 26-37% expressed interest in 5 of the 8 items
    - Floating restaurant
    - Expanded outdoor/nature/cultural center
    - Warm water swimming
    - Water park
    - Showers at DUAs

# Conclusion

- **Successful Recreation Visitor Survey effort:**
  - Over 2500 on-site surveys
  - Over 1000 mail-back surveys (45% response rate)
  - Nearly 1400 surveyed at Lake Oroville, and 300-350 at most other resource areas
    - These samples allow for +/- 5% margin of error (or better) at 95% confidence level for each of those resource areas
  - Smaller samples at Diversion Pool and LFC
  - Over 2100 peak season and over 450 non-peak season surveys
  - Over 1000 boaters, anglers, and trail users contacted
- **Hunter Survey, Similar Site, and Household Survey objectives were also met**

# Conclusion

- Survey data successfully documented:
  - Visitor use patterns
  - Visitor spending
  - Visitor's perceptions/concerns/opinions regarding recreation conditions:
    - Management conditions
    - Natural resource conditions
    - Social conditions
    - Facility conditions
  - Potential for special events & new facilities to motivate more visits or first visits

# Questions?

Presentation to Recreation &  
Socioeconomics WG 6/24/04